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MEMBERSHIP, FINANCIAL, AND OPERATING STATUS OF COOPERATIVE COUNTRY ELEVATORS IN KANSAS, 1931-1934

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By Roy M. Green, Principal Economist, Cooperative Division, Farm Credit Administration 1/

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SUMMARY

This study was made jointly by the Cooperative Division of the Farm Credit Administration, the Department of Agricultural Economics and the Agricultural Extension Service of the Kansas State College. Information was compiled from 380 records, each representing the business of a farmers' cooperative grain elevator for one of the crop years, 1931-1934. Altogether, records were obtained from 133 cooperative elevator associations. Because of differences in size of the elevators, in nearby crop production, types of grain handled, markets, and other basic data, it was found desirable to group these records according to location of the elevators in one of three areas; eastern Kansas, northwestern Kansas, and southwestern Kansas. From analysis of the financial, membership, and operating data of these elevators, the following findings have resulted.

The eastern Kansas area is characterized by a high percentage of elevators having small grain volume and small side-line business; northwestern Kansas by a more even distribution of the number of elevators falling in different grain and side-line volume groups, and southwestern Kansas by a high percentage of large-grain-volume, large side-line business elevators.

Membership patronage of Kansas cooperative elevators was apparently being weakened from two chief sources: (1) On the average, 12 to 15 percent of the enrolled members had become nonproducers and had nothing in the way of produce to offer their cooperative; (2) from 12 to 18 percent of the producing members failed, for one reason or another, to patronize the cooperative elevator in which they had membership.

Under average management of membership relations, there was a loss of patronage from inactive membership equal to one-fourth to one-third of the total membership list.

To reduce the risk of having the grain volume fall below 100,000 bushels a year, for more than half of a representative group of cooperative elevators 150 or more member-patrons were needed in eastern Kansas; 100 to 150 in northwestern Kansas, and 50 to 100 in southwestern Kansas.

The study of membership equity (total equity of members in their cooperative association) in relation to frequency of net income suggests that, in eastern Kansas and similar areas of stable grain production, equity position may be relied upon as an important criterion of ability to pay. In the areas of more hazardous grain production, production trends, position in the price cycle, and local production history, that is, factors external to the elevator business itself, are of greater importance as criterions of ability to pay.

The smallest percentage of net incomes in all three areas was found among the elevators having small grain volume and small side-line business; while the highest percentage was found in that group having large grain volume and large side-line business.

Where number of member-patrons ranged from 100 to 149 or from 150 up, the percentage of elevators showing a net income of $500 or more a year was not widely different in the three areas. In eastern Kansas, however, a high percentage of elevators had less than 100 member-patrons.

For the period 1931 to 1934 inclusive, out of 100 selected elevator records, the number that had a net income was 35 to 100 percent larger for elevators having grain volume of 100,000 bushels or more a year than for elevators having less than that volume. This was without consideration of the varying importance of side lines.

Of the cooperative elevators handling less than 100,000 bushels of grain a year, only from 40 to 60 percent made any net income. Of these not more than about one-third (5 percent in eastern Kansas) made a net income in excess of $2,500. Such limitations in net income make the carrying of a debt in excess of $10,000 to $12,000 risky for small-volume elevators.

A reasonably well-balanced diversification of current assets was associated to some degree with frequency of net income, particularly when receivables were kept within 40 to 50 percent of current assets.

The highest percentage of net incomes was among those elevators having grain volume of 100,000 bushels or more, and a large side-line business. Next, on a decreasing scale, came elevators handling less than 100,000 bushels of grain, and a large side-line business; then elevators with 100,000 bushels of grain or more a year, but with a small side-line business. Elevators handling less than 100,000 bushels of grain a year and a small side-line business showed the smallest percentage of net incomes made by elevators in all three areas.

Among elevators whose margins for side-line handling constituted less than 13 percent of side-line sales, there was a tendency for the percentage showing losses to increase.

The risk of loss was particularly high for elevators having a grain volume of less than 100,000 bushels a year and handling grain on a gross operating margin of less than 5 to 6 cents per dollar of sales, even when sales prices were high and expenses had been reduced.

The financial status of 30 to 40 percent of the Kansas cooperative elevators, as revealed by their balance-sheet statements, suggested the possibility of reducing risks in 3 major respects:

(1) By carrying more adequate cash reserves, especially when impending price recessions become evident.

(2) By keeping a lower proportion of current assets tied up in receivables.

(3) By strict limitation on total liabilities where volume of business is small and incomes at best are moderate.

Therefore, to summarize, operations of local cooperative elevators in Kansas, to be successful in the long run, must not depart too far from the standards of experience. The following limiting factors were found to be important operating guides:

(1) Volume of grain business.

(2) In the absence of the minimum grain requirements, a side-line business sufficient to take care of a large share of the expense account.

(3) Expenses in proportion to what volume of business will justify.

INTRODUCTION

In an effort to assist farmers' cooperative grain elevators in Kansas to improve the security of their financial position by arriving at standards for measurement of their stability, the Cooperative Division, in cooperation with the Department of Agricultural Economics of the Kansas State College and the Kansas State Agricultural Extension Service, conducted a study of these elevators for the years 1931-1934. It was hoped, through this study, to arrive at certain standards of attainment drawn from the experiences of the cooperatives themselves, which might serve as guides to those responsible for their management.

Information on the membership, patronage, volume of grain handled, credit used, equity of members in facilities and other operating details, was obtained by examination of the actual records of the elevators studied. This material represents the experiences of a number of cooperative elevators, recorded in a form which permits examination and study. Even though relatively incomplete in many instances, these records provide a more dependable basis for study than any other type of information readily available.

On the basis of the enumeration of the field workers and other data, it was estimated that the total 1935 membership of the 466 farmers' cooperative elevators in Kansas was between 60,000 and 65,000. Not all of these elevators could be studied in detail, but in the selection of those studied an effort was made to obtain records representative of the cooperative elevators in operation.

A number of basic conditions which materially affect the operation of cooperative elevators were found to vary considerably, not only from year to year, but between sections of the State of Kansas. The average size and age of the elevators was different in each of the three sections. Grain production in the three sections has developed differently. Differences also were found in the type of grain handled, the nature of sub terminal markets, and in the organizational affiliations of the cooperative elevators. In the light of these variations it was deemed advisable to classify the elevators studied according to their location in one of the three areas (fig.1)--eastern Kansas, northwestern Kansas, and southwestern Kansas.

The elevators in the eastern area were smallest in size; their average capacity was 16,000 bushels. In the northwestern area the average capacity was 22,000 bushels, while that of the southwestern elevators was 42,000 bushels. The southwestern area, however, contains about 16 large elevators. Omitting these, the average capacity is practically the same as for the northwestern group.

Although the eastern Kansas area is the oldest wheat-growing section of the State, wheat as one of its crops has come to be of less importance than formerly. Feed grains are relatively important in this area. A large percentage of the wheat grown in the eastern area is Soft Red Winter, low-protein Hard Winter wheat, or mixed Soft and Hard Winter wheat. The principal interior markets are Topeka and Emporia, both more significant now as transit markets than as primary terminals. Farmers' cooperative elevators in the eastern Kansas area are either independent of regional marketing agencies and farm organizations or are, for the most part, affiliated with the Farmers' Union (fig.2).

The northwestern Kansas area is more nearly stationary with reference to expansion of acreage, grows mostly Hard Winter wheat, and has a higher variability in yields than the southwestern area. Salina is the largest interior market. Cooperative elevators in this territory are affiliated largely with Farmers' Union and Equity Union farm organizations (fig.2).

The southwestern Kansas area has shown more expansion of wheat acreage in recent years than the other areas. Hard Winter wheat is grown in this section. A large percentage of such wheat averages high in protein content over a period of years. The principal subterminal markets are Hutchinson, Wichita, and Dodge City. Most of the elevators of this area are affiliated with the Farmers Cooperative Commission Company of Hutchinson, Kan., a regional grain marketing organization (fig.2). There are a few Equity Union, Farmers' Union, or unaffiliated local cooperative elevators in this section, and several that are affiliated with two or more regional organizations.

Distribution of Grain Cooperatives in Kansas

According to a careful count from different local sources of information, there were 466 farmers' cooperative elevator associations, several of which operated seven or eight elevators each. These fall into four distinct cooperative elevator groups in Kansas, based on affiliations. Of the 378 on which it was possible to get reports, 154 were affiliated with the Farmers' Union of Kansas; 100 with the Farmers' Cooperative Commission Company of Hutchinson, Kan., and 18 with the Equity Union; and 106 operated independent of any overhead organization. There is some duplication in the above number, in that 23 elevators had membership in two or more of the overhead organizations.

Grain cooperatives in Kansas have had an average membership of 60,000 to 65,000. This amounts to approximately two-thirds of the reported number of wheat-contract signers under the Agricultural Adjustment Administration, in October 1934, and about 70 percent of

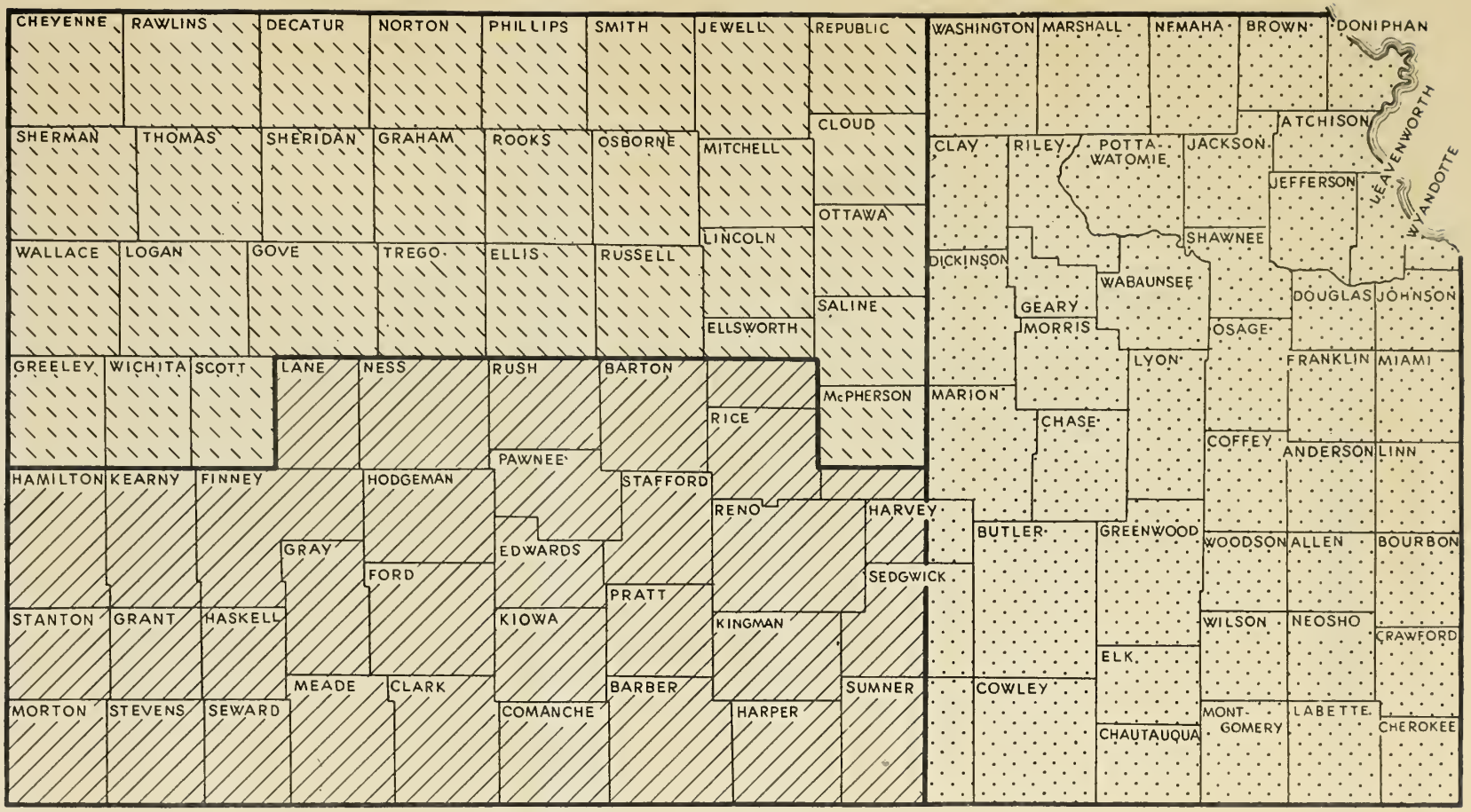


FIGURE 1 - COOPERATIVE ELEVATOR AREAS IN KANSAS, 1935

Basic conditions which affect the operations of cooperative elevators were found to vary considerably in different sections of Kansas. Because of these variations, it was deemed advisable to separate the elevators included in the study into three groups, classified according to their location in the state. 7233-2

the number of farms in the State growing wheat, as reported by the Bureau of the Census for 1929.2/

Approximately 37 percent of the cooperative elevators in Kansas are located in what has been designated in this study as the eastern Kansas area (fig.1), about 27 percent in the northwestern area, and 36 percent in the southwestern area. Total membership of the cooperative elevators in the eastern area is equal to 22.6 percent of the number of farms in the area. Membership in the northwestern area is equal to 46.6 percent of the number of farms; membership in the southwestern area amounts to 71.4 percent.

On the basis of the average grain volume handled per elevator, in the three areas, it was estimated that Kansas cooperative elevators that were operating handled an average of 62 million bushels of grain per year in the period studied, 1931-1934. As most of the grain handled was wheat, this means that approximately 57 percent of the crop was marketed cooperatively.

Between 45 and 50 percent of the dollar volume of cooperative business in the Ninth Farm Credit District comprising the States of Kansas, Oklahoma, Colorado, and New Mexico, is cooperative grain business. From 60 to 65 percent of this cooperative grain business is in Kansas. Approximately 70 to 75 percent of the total number of cooperatives in the State are cooperative elevators.

Membership and Patronage

Membership per elevator in eastern Kansas averaged 126, the median membership, however, was 116 (table 1). In northwestern Kansas membership per elevator averaged 138 or 121, on a similar basis; and in southwestern Kansas 152 or 134. Approximately two-thirds of the members patronized their own elevator in the older eastern grain area, as compared with three-fourths of the members in the newer northwestern and southwestern areas (tables 1 and 2).

Elevator sales averaged $500 per member in eastern Kansas, $600 to $700 in northwestern Kansas, and $900 to $950 in southwestern Kansas, including some business from nonmembers. A margin of 5 cents per dollar of sales between cost of sales and sales value is a fair accomplishment. At this rate it would take $60,000 to $100,000 of sales to cover an annual expense of $3,000 to $5,000 (a frequent range of expenses). On the basis of average sales per member, then, it is clear that 100 to 150 members are necessary for successful operation of the average cooperative elevator, as a rule.

2/ Fifteenth Census of the U. S., 1930 - Agriculture, Vol. II, Part I, Northwestern States, p. 1324.

More than 60 percent of the elevators in eastern Kansas, 70 percent of those in northwestern Kansas, and 72 percent of those in southwestern Kansas had a membership of 100 or more. Less than 10 percent of the elevators in any of the areas had less than 50 members (table 3).

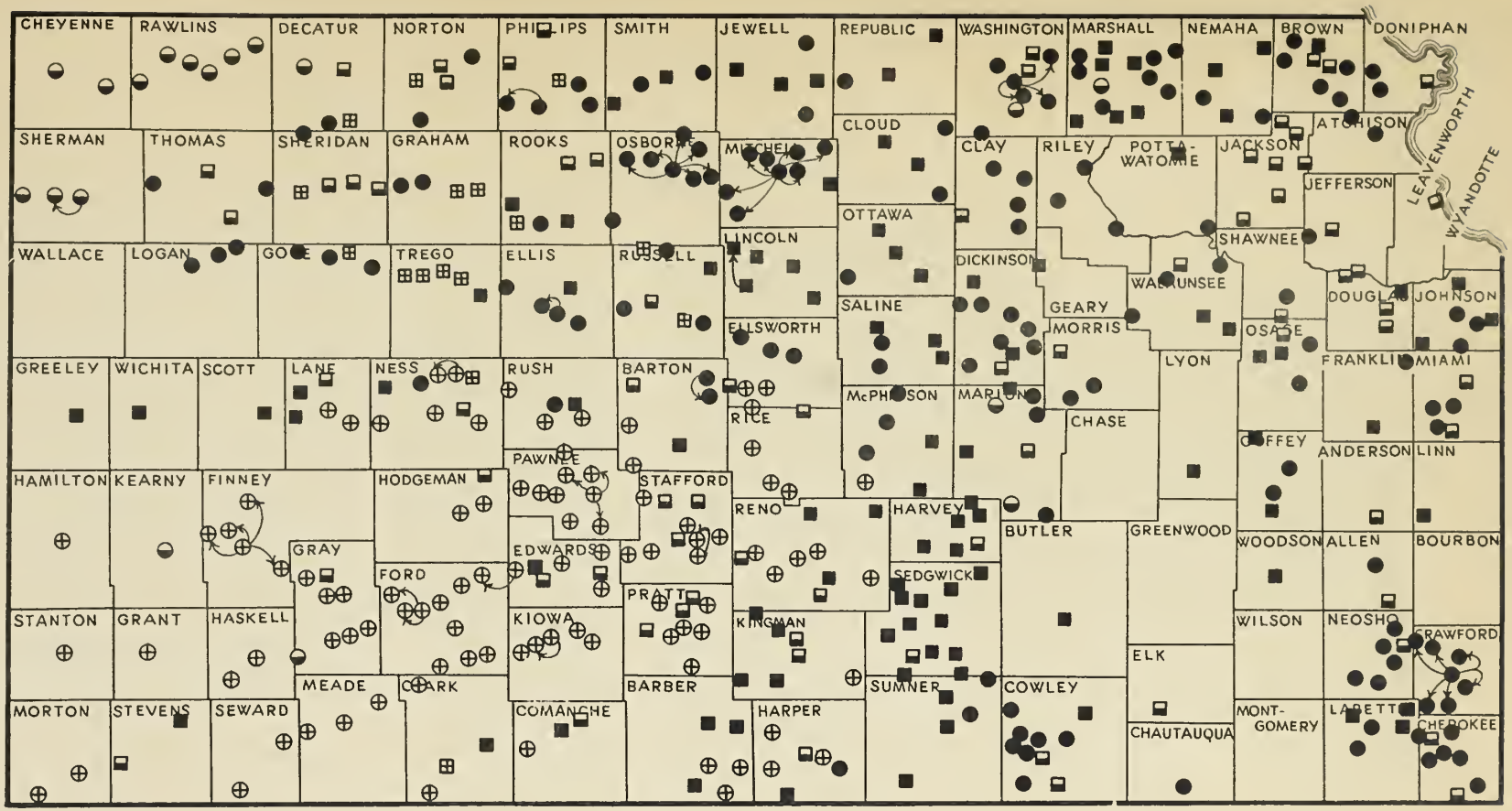
Table 1.- Average membership, patronage and sales as shown by 421 cooperative elevator records, for the 4-year period, 1931-1934. 1/

Area	Type of average	Members per elevator	Member-patrons per elevator	Percentage of members who patronize their elevator	Sales per member	Sales per member-patron
		Number	Number	Percent	Dollars	Dollars
Eastern Kansas	Arithmetic mean	126	84	66.7	500	751
	Median	116	72	62.1	485	713
Northwestern Kansas	Arithmetic mean	138	98	71.0	724	1,025
	Median	121	94	77.7	632	944
Southwestern Kansas	Arithmetic mean	152	116	76.3	953	1,249
	Median	134	94	70.1	906	1,183

1/ Based on 145 records for eastern Kansas; 106 records for northwestern Kansas; and 170 records for southwestern Kansas.

Table 2.- Average membership and patronage for cooperative elevators, 1931-1934.

Area and year	Elevators studied	Average number of members per elevator	Average number of member patrons per elevator	Percentage of members who patronize their elevator
	Number	Number	Number	Percent
Eastern Kansas:				
1931	19	133	84	63.2
1932	43	128	85	66.4
1933	47	125	82	65.6
1934	38	124	86	69.4
Northwestern Kansas:				
1931	19	135	92	68.1
1932	32	139	98	70.5
1933	29	140	101	72.1
1934	26	137	98	71.5
Southwestern Kansas:				
1931	38	150	116	77.3
1932	41	149	115	77.2
1933	38	159	123	77.4
1934	53	149	110	73.8



- ● Farmers' Union
- ⊕ Farmers' Cooperative Commission Company
- ■ Cooperative but affiliated with no regional
- ◒ Equity Union
- ⊞ Old Kansas wheat pool
- ◘ Temporarily closed

FIGURE 2 - COOPERATIVE ELEVATORS IN KANSAS, 1935

Farmers' cooperative elevators in the eastern area of Kansas are either independent of regional marketing agencies and farm organizations or are affiliated with the Farmers' Union. In the northwestern area, the elevators are affiliated largely with the Farmers' Union and the Equity Union, while in the southwestern area, most of them are affiliated with the Farmers' Cooperative Commission Company.

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Table 3.- Number of members as shown by 428 cooperative elevator records for the 4-year period, 1931-1934.

Number of members	Elevator records showing indicated membership					
	Eastern Kansas		Northwestern Kansas		Southwestern Kansas	
	Number	Percent	Number	Percent	Number	Percent
Less than 50	13	8.8	7	6.4	9	5.3
50 - 99	44	29.9	16	14.5	39	22.8
100 - 149	48	32.7	43	39.1	51	29.8
150 or more	42	28.6	44	40.0	72	42.1
All records	147	100.0	110	100.0	171	100.0

Unless active work is carried on to prevent such a situation, there is a tendency for members to become inactive as cooperation in the area grows older. That is, it is necessary to build up a body of younger potential members who may take the place of older members who retire from production, move out of the area, or otherwise cease to contribute to the volume of the cooperative enterprise.

Member-Patrons and Volume of Grain

The number of members patronizing the cooperative elevator is important because of their influence on whether the elevator will handle enough grain to permit of efficient operation. If main reliance is to be placed on grain rather than side lines, it is usually necessary to handle at least 100,000 bushels of grain in order to cover expenses.

In eastern Kansas where average production per member is comparatively low, only about 3 out of 100 elevators handled 100,000 bushels of grain or more a year where the member-patronage was less than 50 (table 4). Where the member-patronage was 50 to 99, 13 elevators out of 100 handled 100,000 bushels of grain a year. With a member-patronage of 100 to 149 the elevators handling larger grain volume rose to 34 out of 100, and where member-patronage was 150 or more, 50 elevators out of 100 handled 100,000 bushels or more of grain a year. Thus with 150 or more members actually patronizing their elevator, half of the elevators in the group were able to handle 100,000 bushels of grain even in eastern Kansas where production per farmer was relatively small.

Table 4.- Relation between number of member-patrons and volume of grain handled, as shown by 419 cooperative elevator records, for the 4-year period, 1931-1934. 1/

Area	Number of member-patrons	Percentage of elevators handling -- Less than 100,000 bushels	Percentage of elevators handling -- 100,000 bushels or more	Percentage of elevators handling 200,000 bushels or more
		Percent	Percent	Percent
Eastern Kansas	Less than 50	96.6	3.4	0
	50 - 99	86.8	13.2	1.5
	100 - 149	65.9	34.1	7.3
	150 or more	50.0	50.0	16.7
Northwestern Kansas	Less than 50	62.5	37.5	12.5
	50 - 99	56.9	43.1	17.6
	100 - 149	47.8	52.2	13.0
	150 or more	27.8	72.2	55.6
Southwestern Kansas	Less than 50	78.9	21.1	5.3
	50 - 99	35.3	64.7	30.9
	100 - 149	31.3	68.7	34.4
	150 or more	6.3	93.7	64.6

1/ Based on 144 records for eastern Kansas; 108 records for northwestern Kansas, and 167 records for southwestern Kansas.

Likewise in the other two areas, more than half of the elevators in which the number of member-patrons reached 100 to 149 handled 100,000 bushels or more of grain a year. In southwestern Kansas, because of the larger-scale production, elevators having member-patronage of 50 to 99 were still able to obtain considerable volume. In none of the areas did as many as half of the elevators handle 200,000 bushels of grain a year, where the number of member-patrons fell below 150.

It is obvious that the number of member-patrons needed to supply a given volume of grain depends upon the size of their grain-growing operations. It is evident from table 4 that, because of larger-scale farm operations, elevators in parts of southwestern Kansas might get along with fewer member-patrons than such elevators in either of the other two areas, particularly in the eastern area.

To reduce the risk of grain volume falling below 100,000 bushels a year for more than half the elevators, it appears that in eastern Kansas 150 or more member-patrons are needed; in northwestern Kansas, 100 to 150; and in southwestern Kansas, 50 to 100.

Member-Patrons and Net Income

Member-patrons' contributions to volume of grain are so important in making possible a net income by the cooperative elevator, that as the number of member-patrons increases much above 50, the percentage of elevators showing a sizeable net income is soon doubled (table 5).

Table 5.- Relation between number of member-patrons and size of net income, for the 4-year period, 1931-1934.

Area	Number of member-patrons	Total records studied	Records showing net loss	Records showing net income of- $500 or less a year	Records showing net income of- more than $500 a year	Percentage of records showing net income of more than $500 a year
	Number	Number	Number	Number	Number	Percent
Eastern Kansas	Less than 50	30	21	2	7	23.3
	50 - 99	67	39	12	16	23.9
	100 - 149	43	18	5	20	46.5
	150 or more	6	1	0	5	83.3
Northwestern Kansas	Less than 50	16	9	4	3	18.8
	50 - 99	51	16	9	26	51.0
	100 - 149	24	12	1	11	45.8
	150 or more	19	2	0	17	89.5
Southwestern Kansas	Less than 50	19	12	1	6	31.6
	50 - 99	70	31	7	32	45.7
	100 - 149	32	9	5	18	56.3
	150 or more	49	5	1	43	87.8

Even in the eastern Kansas area where the percentage of elevators making a sizeable net income was the lowest, the greatest difference between this area and the others came in the case of those elevators whose number of member-patrons fell below 100. In the two member-patron groups, 100 to 149 and 150 or more, the percentage of elevators showing a sizeable net income was not widely different in the three areas. The difficulty in the eastern Kansas area is the high percentage of elevators with a number of member-patrons less than 100.

The size of average net incomes of cooperative elevators with different numbers of member-patrons also suggests the importance of having a minimum of 100 to 150 member-patrons per elevator in the eastern area of smaller grain operations per farmer, and at least 50 to 100 member-patrons per elevator in the other two areas (table 6).

Unless the membership problem is handled better in the future than the records indicate it has been in the past, a total membership one-third to one-half larger than the necessary number of member-patrons suggested above will be required. This emphasizes the need for a continuous and active membership program which will remove inactive members from the list and bring new member-patrons into the organization to replace them.

Table 6.- Relation between the number of member-patrons and the average net income of cooperative elevators, for the 4-year period, 1931-1934.

Area	Number of member-patrons	Records studied	Average net income: Per elevator	Per member-patron	Per member	Per dollar of sales
		Number	Dollars	Dollars	Dollars	Cents
Eastern Kansas	Less than 50	30	- 352.93	- 10.42	- 6.24	- 1.23
	50 - 99	67	- 354.32	- 5.13	- 3.13	- .65
	100 - 149	42	400.47	3.30	2.46	.41
	150 or more	6	935.88	3.92	2.60	1.07
Northwestern Kansas	Less than 50	16	- 867.91	- 22.29	-13.23	- 1.72
	50 - 99	51	1,097.89	13.84	9.36	1.22
	100 - 149	24	453.11	3.84	2.69	.46
	150 or more	15	3,194.46	16.79	13.38	1.83
Southwestern Kansas	Less than 50	19	15.47	.43	,27	.03
	50 - 99	70	790.55	10.64	7,24	.75
	100 - 149	32	2,142.08	17.62	13.08	1.49
	150 or more	49	7,900.88	39.26	32.88	3.36

Membership Equity as a Measure of Credit Risk

The total equity of members in a cooperative elevator business may be considered more important than the number of members. It is a more immediate measure of the organization's ability to undertake an increased debt. Its worth as a criterion of ability to pay, however, varies with the characteristics of the grain-producing section in which it is to be applied.

In eastern Kansas the membership equity in a cooperative elevator tends to remain more stable than in the other two areas (table 7). This is because the steadier small-volume operations make for relatively low net incomes or low losses in any one year. Net incomes, when they are made, fall within a narrower range. A low equity position is hard to

correct out of small net incomes, but at the same time a high equity position is not suddenly endangered by large losses. In the other two areas, particularly in the sections where grain crops are somewhat uncertain, the equity position of members tends to change more frequently.

Table 7.- Percentage of elevators consistently falling in the same membership-equity classification, for the 3-year period, 1932-1934.

Area	Elevators studied	Percentage of elevators consistently falling in the same membership-equity group
	Number	Percent
Eastern Kansas	36	77.8
Northwestern Kansas	23	60.9
Southwestern Kansas	39	51.3

In eastern Kansas, increased membership equity up to 100 percent is closely associated with an increased percentage of elevators making the higher incomes. In the other two areas, where natural hazards to crops are greater, net incomes increase with increased membership equity up to 80 to 90 percent, but not beyond this point. In areas of such natural risks, highest equities can be maintained only by conservative operations that produce somewhat less than maximum net annual incomes.

It is in eastern Kansas, therefore, that a higher percentage of elevators making net incomes most consistently goes along with higher membership equity (table 8). There is a difference between this and the other areas, indicating that membership equity is some criterion of cumulative success or failure up to date, but the difference is smaller in the more speculative areas. The apparent exception is in 1933 and 1934, in the southwestern area, where the difference in the two equity groups is large. This is because of the exceptional decline in grain volume, because of a drastic decline in the size of wheat crop in the area.

These facts suggest that in eastern Kansas and similar stable areas, equity position may be relied upon as an important criterion. In more speculative areas, production trends, position in the price cycle, and local production history are of greater importance as criterions of ability to pay.

Table 8.- Cooperative elevator records showing net income, by membership-equity groups, for two periods, 1931-1932 and 1933-1934.

Area and period	Equity less than 75 percent: Records studied	Records showing net loss	Records showing net income	Percentage of records showing net income	Equity 75 percent or more: Records studied	Records showing net loss	Records showing net income	Percentage of records showing net income
	Number	Number	Number	Percent	Number	Number	Number	Percent
Eastern Kansas:								
1931-1932	40	31	9	22.5	22	12	10	45.5
1933-1934	52	28	24	46.2	32	8	24	75.0
Northwestern Kansas:								
1931-1932	14	6	8	57.1	39	13	26	66.7
1933-1934	15	7	8	53.3	42	13	29	69.0
Southwestern Kansas:								
1931-1932	34	9	25	73.5	48	12	36	75.0
1933-1934	30	22	8	26.7	66	16	50	75.8

The differences between elevators having different membership equities, as indicated by a few important financial and operating ratios, are shown in tables 9, 10, and 11. In 1931 there was a distinctly higher percentage of the higher equity elevators showing net incomes in eastern and northwestern Kansas. In southwestern Kansas, with the record crop of 1931, there was little difference in this respect between the two equity groups. In the first two areas other differences between the equity groups were mainly differences in cash reserves carried, expenses, and reliance upon side lines. The higher equity groups were really carrying a little heavier amounts of receivables at the time. In the southwest the main differences in equity groups was in cash reserves, size of receivables, and greater dependence of the higher equity group upon grain operations.

In 1932 higher equity groups were more closely associated with higher percentage of net income. They carried higher cash reserves, a smaller load of receivables, and in the eastern and northwestern areas had reduced expenses considerably.

By 1933 the difference in equity groups lay largely in cash reserves, load of receivables, cost of sales to sales, expenses, and in eastern Kansas upon greater reliance upon side lines to cover expenses.

By 1934 the higher equity groups were consistently averaging a little larger grain volume out of a greatly reduced total volume of grain available. They also differed from the lower equity groups in having larger cash reserves, a somewhat smaller load of receivables, and lower expenses, and were relying somewhat more upon income from side lines to cover a part of expenses. Income from side lines became increasingly important with shrinking grain volume. It is noticeable that, in the case of the southwestern elevators, the two equity groups had just about reversed their 1931 positions with respect to side lines as a cover for part of the expense account.

Total liabilities per elevator association averaged $10,054.61 in eastern Kansas, $6,546.94 in northwestern Kansas, and $9,432.06 in southwestern Kansas. Interest at 5 percent on the average liability per elevator would amount to 5.9 percent of the average expense account. In some cases this interest might be the difference between net income and loss when, as in 1932, it was difficult to make gross margins cover expenses (table 10). This additional burden of fixed expense makes it more difficult for low-equity elevators to adjust expenses to declining prices in years like 1932.

Effect of Crop Conditions on Income

The period covered by this study, 1931 to 1934 inclusive, includes a year of declining prices, 1931; a year of extremely low prices, 1932; a year of advancing prices, 1933; and a year of price levels higher than any since 1930, 1934.

The percentage of elevators showing net income was lowest in eastern Kansas in 1932 (table 12). In the other two areas there was little difference between conditions in 1932 and 1933. In each of these two area the year 1933 was marked by extremely adverse crop conditions. For all areas combined the percentage of elevators showing net income ranged from approximately 49 percent, in 1932, to 73 percent in 1931.

Except in the unusually good year for the southwestern group (1931), because of volume of grain handled, the range in percentage of elevators showing net income was not so wide in the northwest (60 to 70 percent) and in the southwest (59 to 62 percent). This may be compared with 64 percent to 78 percent for the period 1931 to 1934, for a group of Oklahoma elevators adjacent to the southwestern Kansas territory. In the eastern area of smaller elevator incomes, the range was from 30 percent in 1932 to 58 percent in 1934; the more favorable crop conditions in the eastern area helped considerably in 1933 and 1934.

Thus far consideration has been given to what cooperative elevator experience shows with respect to the percentage of gainfully operated elevators that might be expected in a representative sample depending

Table 9.- Financial and Operating Features, by Membership Equity Groups, Eastern Kansas, 1931 - 1934 1/

Equity group	Elevators studied showing net income	Elevators studied showing net loss	Bushels handled	Percentage of membership equity	Ratio of cash to current liabilities	Percentage receivables are of current assets	Ratio of operating costs to gross income	Ratio of cost of sales to sales	Operating expenses per dollar of sales	Percentage of operating expenses covered by gross margins from side lines
	Number	Number	Number	Percent	Ratio	Percent	Ratio	Ratio	Cents	Percent
1931:										
Less than 75 percent	3	10	53,475	50.3	.07	37.1	1.02	.91	11.5	16.4
75 percent or more	4	2	47,724	95.8	1.00	48.1	.98	.91	11.0	23.0
1932:										
Less than 75 percent	6	21	38,020	44.5	.03	51.0	1.03	.90	14.0	25.3
75 percent or more	6	10	59,978	95.7	.70	39.6	1.01	.90	12.3	29.0
1933:										
Less than 75 percent	15	14	61,200	51.4	.05	43.6	1.00	.92	7.7	19.2
75 percent or more	11	6	58,000	92.0	.45	35.1	.99	.92	7.9	32.7
1934:										
Less than 75 percent	9	14	75,315	46.1	.08	32.3	1.01	.95	6.3	29.9
75 percent or more	13	2	80,115	90.3	2.00	22.3	.98	.94	4.4	47.4

1/ Based on medians.

Table 10.- Financial and Operating Features, by Membership Equity Groups, Northwestern Kansas, 1931 - 1934 1/

Equity group	Elevators studied showing net income	Elevators studied showing net loss	Bushels handled	Percentage of membership equity	Ratio of cash to current liabilities	Percentage receivables are of current assets	Ratio of operating costs to gross income	Ratio of cost of sales to sales	Operating expenses per dollar of sales	Percentage of operating expenses covered by gross margins from side lines
	Number	Number	Number	Percent	Ratio	Percent	Ratio	Ratio	Cents	Percent
1931:										
Less than 75 percent	3	2	174,000	62.4	.10	34.2	1.00	.93	8.9	12.3
75 percent or more	11	4	172,940	88.4	.50	36.0	.99	.94	8.1	27.2
1932:										
Less than 75 percent	5	4	140,000	64.4	.08	45.7	1.00	.91	9.0	32.5
75 percent or more	15	9	107,199	90.8	1.00	33.1	1.00	.92	8.8	27.8
1933:										
Less than 75 percent	3	4	85,400	55.8	.07	49.0	1.00	.96	9.3	41.5
75 percent or more	15	8	88,700	93.7	.80	24.3	.99	.94	6.3	26.8
1934:										
Less than 75 percent	5	3	50,125	58.1	.15	35.4	.99	.91	9.4	49.9
75 percent or more	14	5	67,103	91.0	.90	35.0	.99	.94	6.0	53.9

1/ Based on medians.

Table 11.- Financial and Operating Features, by Membership Equity Groups, Southwestern Kansas, 1931 - 1934 1/

Equity group	Elevators studied showing net income	Elevators studied showing net loss	Bushels handled	Percentage of membership equity	Ratio of cash to current liabilities	Percentage receivables are of current assets	Ratio of operating costs to gross income	Ratio of cost of sales to sales	Operating expenses per dollar of sales	Percentage of operating expenses covered by gross margins from side lines
	Number	Number	Number	Percent	Ratio	Percent	Ratio	Ratio	Cents	Percent
1931:										
Less than 75 percent	17	2	359,250	66.2	.20	55.6	.98	.92	5.6	65.4
75 percent or more	18	1	312,783	85.5	1.40	36.2	.98	.93	5.6	33.0
1932:										
Less than 75 percent	8	7	186,750	67.2	.10	50.8	1.00	.92	8.0	31.0
75 percent or more	18	11	240,000	87.7	1.10	45.3	1.00	.90	8.9	46.3
1933:										
Less than 75 percent	2	8	100,500	64.4	.10	52.1	1.01	.93	8.3	52.4
75 percent or more	22	9	93,931	90.9	.80	35.6	.98	.91	7.4	39.7
1934:										
Less than 75 percent	6	14	82,196	61.1	.10	38.4	1.01	.95	6.3	45.0
75 percent or more	28	7	109,600	89.0	1.10	32.2	.99	.95	4.9	50.2

1/ Based on medians.

upon (1) size of membership, (2) degree of patronage, (3) equity acquired by members, and (4) trend in grain prices. It is now proposed to examine more carefully the association of volume of grain with percentage of elevators showing net income.

Table 12.- Year-to-year variation in percentage of cooperative elevators showing net income, 1931-1934

Area and year	Records studied	Records showing net loss	Records showing net income	Percentage of records showing net income
	Number	Number	Number	Percent
Eastern Kansas:				
1931	19	12	7	36.8
1932	44	31	13	29.5
1933	46	20	26	56.5
1934	38	16	22	57.9
Northwestern Kansas:				
1931	20	6	14	70.0
1932	33	13	20	60.6
1933	30	12	18	60.0
1934	27	8	19	70.4
Southwestern Kansas:				
1931	38	3	35	92.1
1932	44	18	26	59.1
1933	41	17	24	58.5
1934	55	21	34	61.8
All areas:				
1931	77	21	56	72.7
1932	121	62	59	48.8
1933	117	49	68	58.1
1934	120	45	75	62.5

Volume of Grain and Net Income

Volume of grain handled is only one measure of the volume of business done by the local cooperative elevator. In some sections it would be a very imperfect measure because the elevators handle more of other commodities than of grain.

In northwestern and southwestern Kansas, the business of handling side lines is important,[1] 50 to 60 percent of the elevators handling large volumes of grain as compared with 35 to 40 percent of the small volume elevators. In these areas grain volume is a fair index of total volume of business as a general rule. In eastern

1/ That is, gross income from side lines is sufficient to cover 40 percent or more of expenses.

Kansas, where side lines rather than grain constitute the greater volume of business, side lines were important in about 36 percent of the small-grain-volume elevators as against 22 percent of the larger-grain-volume elevators. Here grain volume alone was not a good index of total volume of business. With these limitations in mind, it seemed worth while to examine differences between grain volume groups. The influence of side lines is illustrated in table 19.

A volume of 100,000 bushels of grain or more a year increased the percentage of elevators showing a net income in all three areas, irrespective of the varying importance of side lines (table 13). The relative differences between grain volume groups was fairly comparable in the three areas.

Conditions were such in 1932 that in all three areas the difference between the small-grain-volume group and the large-grain-volume group was less than in other years. As a rule, the larger volume elevators are slower in cutting expenses and making adjustments to lower prices, so that in a low price period they lose some of their relative advantage for a while.

For the whole period 1931-1934 the number of elevator records that showed net income was 35 to 100 percent larger where the grain volume was 100,000 bushels or more a year (table 14).

While, as an average for the 4-year period, 40 to 55 percent of the small-grain-volume elevators made some net incomes in spite of their volume handicap, the range in size of their net income was much narrower than for the larger-volume elevators (table 15).

In eastern Kansas, considering only the elevators that made some net income, 94 percent of the elevators with less than 100,000 bushels of grain volume a year had net incomes of $2,500 or less. On the other hand, only about 71 percent of the larger volume elevators had net incomes within this range. In northwestern Kansas the narrower range in net incomes, 0 to $2,500, embraced 73 percent of the smaller-volume elevators and 49 percent of the larger-volume elevators; in southwestern Kansas, 68 percent of the smaller-volume elevators, and 37 percent of the larger-volume elevators.

As noted above, not much more than 40 to 55 percent of Kansas cooperative elevators with less than 100,000 bushels of grain a year made any net income (table 16). This may be compared with an average of 57.8 percent for Oklahoma cooperative elevators during the same period, 1931 to 1934. Of those that did make a net income, only 6 percent in eastern Kansas and 32 percent in southwestern Kansas exceeded $2,500 a year. It is evident, therefore, that for the cooperative elevator with business of less than 100,000 bushels a year, the credit risk becomes high if a total indebtedness is incurred by the elevator which requires for liquidation more than $1.000 to $1,200 a year. This is particularly the

Table 13.- Number and percentage of cooperative elevator records showing net income, by volume groups, 1931-1934

Area and year	Volume of less than 100,000 bushels: Records studied	Records showing net income	Percentage of records showing net income	Volume of 100,000 bushels or more: Records studied	Records showing net income	Percentage of records showing net income
	Number	Number	Percent	Number	Number	Percent
Eastern Kansas:						
1931	16	5	31.3	3	2	66.7
1932	33	9	27.3	9	3	33.3
1933	37	19	51.4	9	7	77.8
1934	30	16	53.3	6	5	83.3
Northwestern Kansas:						
1931	1	0	0	18	13	72.2
1932	14	8	57.1	18	11	61.1
1933	20	9	45.0	10	9	90.0
1934	20	13	65.0	7	6	85.7
Southwestern Kansas:						
1931	2	1	50.0	35	33	94.3
1932	5	2	40.0	38	24	63.2
1933	21	8	38.1	19	16	84.2
1934	28	11	39.3	27	23	85.2

Table 14.- Number and percentage of cooperative elevator records showing net income, by volume groups, for the 4-year period, 1931-1934

Area	Bushels of grain handled	Records studied	Records showing net loss	Records showing net income	Percentage of records showing net income
		Number	Number	Number	Percent
Eastern Kansas	Less than 100,000	116	67	49	42.2
	100,000 or more	27	10	17	63.0
Northwestern Kansas	Less than 100,000	55	25	30	54.5
	100,000 or more	53	14	39	73.6
Southwestern Kansas	Less than 100,000	56	34	22	39.3
	100,000 or more	119	23	96	80.7

Table 15.- Relation between size of net income and volume of grain handled for the 4-year period, 1931-1934

Net income	Eastern Kansas				Northwestern Kansas				Southwestern Kansas			
	Records showing less than 100,000 bushels		Records showing 100,000 bushels or more		Records showing less than 100,000 bushels		Records showing 100,000 bushels or more		Records showing less than 100,000 bushels		Records showing 100,000 bushels or more	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
$ 0- 500	18	36.7	1	5.9	8	26.7	6	15.4	6	27.3	7	7.3
501-1,000	12	24.5	5	29.4	7	23.3	4	10.2	5	22.7	7	7.3
1,001-1,500	4	8.2	2	11.8	2	6.7	6	15.4	1	4.6	7	7.3
1,501-2,000	5	10.2	1	5.9	3	10.0	2	5.1	0	-	7	7.3
2,001-2,500	7	14.3	3	17.6	2	6.7	1	2.6	3	13.6	7	7.3
2,501-3,000	1	2.1	0	-	1	3.3	1	2.6	3	13.6	7	7.3
3,001-3,500	0	-	0	-	3	10.0	2	5.1	2	9.1	3	3.1
3,501-4,000	1	2.0	1	5.9	2	6.7	2	5.1	0	-	3	3.1
4,001-4,500	1	2.0	3	17.6	0	-	1	2.6	0	-	8	8.3
4,501-5,000	0	-	1	5.9	1	3.3	0	-	1	4.6	1	1.1
Over 5,000	0	-	0	-	1	3.3	14	35.9	1	4.5	39	40.6
Total	49	100.0	17	100.0	30	100.0	39	100.0	22	100.0	96	100.0

case if the small volume elevator does not depend considerably on side lines, as is pointed out later. (Page 28.)

Even if $1,000 to $1,200 average net income could be applied wholly to debt liquidation, which is hardly practical in holding a cooperative membership together, it would require 10 to 15 years to liquidate a loan of $10,000 to $12,000. The risk of much greater total liabilities than this is apparent, especially in areas where the grain volume is consistently below 100,000 bushels a year.

Composition of Current Assets

Current position of cooperative elevators is, of course, the result of net gains and losses from operations previous to the balance sheet statement rather than a cause of the gains or losses. Nevertheless this current position may become a causal factor in future gains and losses in that it may be a limiting factor in credit to be obtained for future operations. From the standpoint of financing, both on the part of creditors and the board of directors of the cooperative, the elevator must be judged by results as well as by explanations and reasons.

From this viewpoint, therefore, an examination of the experience of cooperative elevators with reference to composition of their current assets seemed desirable.

Current assets of the Kansas cooperative elevators for the period studied consisted of 15.2 percent cash, 40.4 percent receivables, 32.8 percent inventory, and 11.6 percent other assets, as an average for all elevator records.

Cash amounting to more than 20 percent of current assets was somewhat closely associated with elevators making net incomes, as a rule (table 17). The elevators with the higher cash position in all three areas were in a more favorable position for making net incomes. The difference in the percentages of records showing net incomes between elevators having less than 20 percent of current assets in cash and those having 20 percent or more was greater in the more stable eastern area. In the other two areas there are large sections where net incomes are highly speculative because of the greater natural hazards in grain production. Furthermore, it is noticeable that in 1931 and 1934, when business conditions were better, there was closer association between cash position and percentage of elevators showing net gains.

As a practical proposition, in times of normal business activity, a cash position equal to 20 percent or more of current assets is a good sign of ability to earn a net income. A lower cash position indicates that the elevator should look for other points of strength, as a large share of loss-elevators fall in this class.

Table 16.- Cooperative elevator records showing net income, grouped according to cash assets, 1931-1934

Area and year	Records showing less than 20 percent of current assets in cash			Records showing 20 percent or more of current assets in cash		
	Number studied	Number showing net income	Percentage of records showing net income	Number studied	Number showing net income	Percentage of records showing net income
	Number	Number	Percent	Number	Number	Percent
Eastern Kansas:						
1931	14	2	14.3	5	5	100.0
1932	35	6	17.1	8	6	75.0
1933	39	20	51.3	7	6	85.7
1934	21	8	38.1	17	14	82.4
Northwestern Kansas:						
1931	14	9	64.3	6	5	83.3
1932	23	13	56.5	9	6	66.7
1933	23	14	60.9	7	4	57.1
1934	20	13	65.0	7	6	85.7
Southwestern Kansas:						
1931	21	18	85.7	17	17	100.0
1932	26	15	57.7	18	11	61.1
1933	31	17	54.8	10	7	70.0
1934	38	21	55.3	17	13	76.5

Table 17.- Cooperative elevator records showing net income, grouped according to current assets in inventory, 1931-1934

Area and year	Records showing less than 30 percent of current assets in inventory			Records showing 30 percent or more of current assets in inventory		
	Number studied	Number showing net income	Percentage of records showing net income	Number studied	Number showing net income	Percentage of records showing net income
	Number	Number	Percent	Number	Number	Percent
Eastern Kansas:						
1931	7	5	71.4	12	2	16.7
1932	14	4	28.6	29	8	27.6
1933	13	4	30.8	33	22	66.7
1934	10	1	10.0	28	21	75.0
Northwestern Kansas:						
1931	10	5	50.0	10	9	90.0
1932	11	5	45.5	21	14	66.7
1933	10	5	50.0	20	13	65.0
1934	11	4	36.4	16	15	93.8
Southwestern Kansas:						
1931	29	26	89.7	9	9	100.0
1932	31	19	61.3	13	7	53.8
1933	22	11	50.0	19	13	68.4
1934	26	12	46.2	29	22	75.9

In eastern Kansas, an area characterized more by straight merchandising of grain than by country elevator storage operations, inventory values of less than 30 percent of current assets were closely associated with elevators making net gains, in 1931 when prices were falling. Most of the losses were associated with inventory values in excess of 30 percent of current assets. After prices became steadier and began to rise, the reverse of this situation was true. (Table 17.) A similar situation existed in the case of Oklahoma cooperative elevators studied.

The situation in northwestern and southwestern Kansas in the earlier years is colored by the extremely large crop of 1931 and the storage operations of some cooperative elevators made possible through the use of funds available under the Agricultural Marketing Act (1929). In the later years the trend was similar to that in eastern Kansas and Oklahoma.

Receivables equal to 40 percent or more of current assets were associated with a higher percentage of losses than were receivables constituting a smaller proportion of total current assets. Where receivables were much more than 40 percent of current assets, the increase was at the expense of cash reserves. What should probably have been part of cash on hand was yet to be collected. A weak collection policy that substitutes book accounts for cash in the elevator's assets, naturally bears some relation to the frequency with which net income is earned. This is particularly true if a period of price decline is impending.

In order that the relationship between size of receivables and frequency of net income might not be unduly influenced by grain volume handled, the relationship was studied for both elevators handling less than 100,000 bushels of grain a year, and for elevators with larger grain volume (table 18). There was a consistent difference in frequency of net incomes relative to amount of receivables in both volume groups, but the degree of difference varied from area to area.

Earnings from Side Lines

Returns from side line operations play an important part in determining the frequency with which cooperative elevators are able to show net gains (table 19). This is true for both the smaller and the larger-grain-volume elevators. It is particularly true for the smaller-grain-volume elevators, and for the larger ones when crop production is below normal.

There are several different measures of the relative importance of side-line business in the total business of the elevator. The one chosen is one that is of particular importance from a practical standpoint. It is the extent to which gross gains from side lines would pay total expenses of the elevator. Where gross margins from side lines amounted to 40 percent or more of total expenses, side lines were considered of major importance. Where gross margins from side lines amounted to a smaller percentage of expenses, side lines were considered of lesser importance in the elevator's operations.

Table 18.- Cooperative elevator records showing net income, grouped according to volume and percentage of current assets in receivables, for the 4-year period, 1931-1934

Area	Bushels of grain handled	Records showing 40 percent or more of current assets in receivables: Number studied	Records showing 40 percent or more of current assets in receivables: Number showing net income	Records showing 40 percent or more of current assets in receivables: Percentage of records showing net income	Records showing less than 40 percent of current assets in receivables: Number studied	Records showing less than 40 percent of current assets in receivables: Number showing net income	Records showing less than 40 percent of current assets in receivables: Percentage of records showing net income
		Number	Number	Percent	Number	Number	Percent
Eastern Kansas	Less than 100,000	51	13	25.5	65	36	55.4
	100,000 or more	14	5	35.7	13	12	92.3
Northwestern Kansas	Less than 100,000	23	11	47.8	31	18	58.1
	100,000 or more	25	18	72.0	28	21	75.0
Southwestern Kansas	Less than 100,000	26	7	26.9	30	15	50.0
	100,000 or more	60	42	70.0	59	54	91.5

Table 19.- Percentage of cooperative elevator records showing net gains, by volume groups, and classified according to the percentage which gross margin on side lines contributed toward operating expenses, for the 4-year period, 1931-1934

Area	Bushels of grain handled	Records showing gross margin on side lines covering less than 40 percent of expenses: Number studied	Number showing net income	Percentage of records showing net income	Records showing gross margin on side lines covering 40 percent or more of expenses: Number studied	Number showing net income	Percentage of records showing net income
		Number	Number	Percent	Number	Number	Percent
Eastern Kansas	Less than 100,000	74	24	32.4	42	25	59.5
	100,000 or more	21	12	57.1	6	5	83.3
Northwestern Kansas	Less than 100,000	33	16	48.5	22	14	63.6
	100,000 or more	26	14	53.8	27	25	92.6
Southwestern Kansas	Less than 100,000	36	9	25.0	19	13	68.4
	100,000 or more	44	29	65.9	73	65	89.0

Different Combinations of Grain and Side Lines

There are four possible combinations of grain volume and side lines on the basis of the classification indicated in table 20. These are the combinations: (1) small volume, small side lines; (2) large volume, small side lines; (3) small volume, large side lines; and (4) large volume, large side lines. Following this grouping the percentage of elevators showing net income may be arrayed as shown in table 20 for the three areas.

Table 20.- Percentage of elevators showing income, grouped according to grain volume and side-line income

Area and group	Total number	Percentage showing net income
Eastern Kansas:		
Small grain volume - small side-line income	74	32.4
Large grain volume - small side-line income	21	57.1
Small grain volume - large side-line income	42	59.5
Large grain volume - large side-line income	6	83.3
Northwestern Kansas:		
Small grain volume - small side-line income	33	48.5
Large grain volume - small side-line income	26	53.8
Small grain volume - large side-line income	22	63.6
Large grain volume - large side-line income	27	92.6
Southwestern Kansas:		
Small grain volume - small side-line income	36	25.0
Large grain volume - small side-line income	44	65.9
Small grain volume - large side-line income	19	68.4
Large grain volume - large side-line income	73	89.0

It is apparent from these groupings that the difference between having a large grain business and small side lines and having a small grain business and a large side-line business is not so great. One is merely a substitute for the other in obtaining a fair total volume. It is where both grain volume and side-line volume are lacking and where side lines add to, rather than substitute for, grain volume that widest differences arise.

This further emphasizes the particular importance of an adequate side-line business for elevators averaging less than 100,000 bushels of grain a year. It is this group with small side-line business which shows the lowest percentage number of net incomes.

Table 20 also shows important area differences in the distribution of elevators among the 4 grain-volume-side-line groups. These different

distributions, however, actually characterize the three areas. Eastern Kansas, though having elevators in all groups, is characterized by the high percentage of small volume small side-line elevators, hence the low percentage of total elevators for the area that showed net gains. Northwestern Kansas is characterized by a greater diversification or more even distribution of elevators among the four groups. Southwestern Kansas is characterized by the high percentage of large grain volume elevators which also make side lines an important part of their business.

Handling Margins on Side Lines

Gross side-line margins, or the difference between cost of sales and sales expressed in percentage of sales, averaged from 10 to 15 percent during the 4-year period studied. A gross side-line margin of 13 percent or more, with few exceptions, reduced the percentage of elevator records showing a loss (table 21).

On the other hand, with a side-line margin of less than 13 percent, there was a tendency for the percentage of elevators showing losses to increase (table 21).

Table 21.- Cooperative elevator records showing losses, grouped according to gross margin on side lines, 1931-1934

Area and year	Records showing less than 13 percent gross margin on side lines			Records showing 13 percent or more gross margin on side lines		
	Number studied	Number showing net loss	Percentage of records showing net loss	Number studied	Number showing net loss	Percentage of records showing net loss
	Number	Number	Percent	Number	Number	Percent
Eastern Kansas:						
1931	14	9	64.3	4	2	50.0
1932	23	18	78.3	17	12	70.6
1933	26	13	50.0	17	6	35.3
1934	27	11	40.7	9	3	33.3
Northwestern Kansas:						
1931	13	6	46.2	7	0	0
1932	24	11	45.8	9	2	22.2
1933	20	7	35.0	10	5	50.0
1934	18	6	33.3	8	2	25.0
Southwestern Kansas:						
1931	12	3	25.0	25	0	0
1932	13	8	61.5	31	10	32.3
1933	15	7	46.7	26	10	38.5
1934	26	13	50.0	26	6	23.1

Expenses of Operation

From the practical standpoint of the cooperative elevator itself, the problem of separating expenses or costs into grain and side-line costs is so tedious that there may well be question of whether the returns will justify the labor. It is important, however, that the elevator have some criterion by which to judge its expenses. Expenses per dollar of sales, with all its faults as a measure, avoids the difficulties of trying to separate grain and side-line expenses.

Because expenses do not vary with prices, the measure, expenses per dollar of sales, will vary with the price level. During the 4-year period studied, expenses centered around 10 cents per dollar of sales in 1931 and 1932 when sales prices were falling and expenses were not yet reduced to their lowest point. In 1933 and 1934, expenses centered around 5 or 6 cents per dollar of sales as sales prices had advanced and expenses had reached a low level with but little recovery.

Likewise expenses per dollar of sales will vary with the grain volume of the elevator, as well as with total volume of business. The extent to which grain volume influences the grouping over or under the central tendency is indicated in the two tables, 22 and 23.

These data indicate the difficulties that elevators, especially those with less than 100,000 bushels of grain, may have in trying to operate on a gross operating margin of less than 5 or 6 cents per dollar of sales.

On the whole, elevators with 100,000 bushels of grain or more a year operated at below average expense per dollar of sales twice as frequently as did elevators with the smaller volumes of grain (tables 22 and 23).

Extent of Cooperative Grain Handling in Kansas

Cooperative elevator membership in Kansas equals approximately 70 percent of the number of wheat farms in the State, as reported in the Census of 1930.

The present study indicates that in eastern Kansas, 60 to 65 percent of the membership patronize their own elevator; in northwestern and southwestern Kansas, 70 to 75 percent. Part of this nonpatronage is due to 12 to 15 percent of the membership having become nonproducers. As far as volume of business is concerned, this nonpatronage is partly offset by the cooperatives doing approximately 25 percent of grain business and 40 percent of side-line business with nonmembers.

Reports available indicated that cooperative elevators, on the average, shipped out 61 percent of the carloads of grain shipped from their local stations. This indicates that about 61 percent of the grain at stations where cooperatives were located was handled locally through

Table 22.- Relation between volume of grain handled and expenses per dollar of sales for cooperative elevators, 1931 and 1932.

Area and year	Elevators handling less than 100,000 bushels: Number studied	Number with expenses less than 10 cents per dollar of sales	Percentage with expenses under 10 cents per dollar of sales	Elevators handling 100,000 or more bushels: Number studied	Number with expenses less than 10 cents per dollar of sales	Percentage with expenses under 10 cents per dollar of sales
	Number	Number	Percent	Number	Number	Percent
Eastern Kansas:						
1931	16	3	18.8	3	2	66.7
1932	33	6	18.2	9	5	55.6
Northwestern Kansas:						
1931	1	0	0	18	16	88.9
1932	14	7	50.0	18	13	72.2
Southwestern Kansas:						
1931	2	2	100.0	35	32	91.4
1932	5	2	40.0	38	26	68.4

Table 23.- Relation between volume of grain handled and expenses per dollar of sales for cooperative elevators, 1933 and 1934

Area and year	Elevators handling less than 100,000 bushels: Number studied	Number with expenses less than 6 cents per dollar of sales	Percentage with expenses under 6 cents per dollar of sales	Elevators handling 100,000 or more bushels: Number studied	Number with expenses less than 6 cents per dollar of sales	Percentage with expenses under 6 cents per dollar of sales
	Number	Number	Percent	Number	Number	Percent
Eastern Kansas:						
1933	37	9	24.3	9	5	55.6
1934	30	13	43.3	6	6	100.0
Northwestern Kansas:						
1933	20	6	30.0	10	6	60.0
1934	20	6	30.0	7	5	71.4
Southwestern Kansas:						
1933	21	1	4.8	19	6	31.6
1934	28	11	39.3	27	22	81.5

the cooperatives. This may be compared with a total of 57 percent of the total wheat crop which it is estimated is handled cooperatively based on the average volume of grain handled per elevator multiplied by the number of active cooperative elevators, and compared with the total wheat crop marketed (page 7).

Cooperative elevator shipping records showed that, on the average, 50 to 55 percent of their cars in eastern and northwestern Kansas went to terminal cooperatives, and in southwestern Kansas from 50 to 70 percent of the cars went to terminal cooperatives, depending partly upon the size of the crop. These reports were in the main from local cooperatives affiliated with terminal cooperatives, so that the percentage just quoted would be high if applied to all local cooperative elevators.

The three large terminal cooperatives in the State reported handling a quantity of grain for 1934, mostly wheat, equal to 25 to 30 percent of what it is estimated all local cooperative elevators handled.

This gives only a general survey of the present extension of cooperative grain marketing operations in the State. This broader picture of the general outlook is based on such fragments of information as it was possible to gather in connection with the main study of the comparative strength of individual elevator set-ups. It gives some idea, however, of the opportunities for systematic building up of the cooperative grain marketing structure throughout the State, on the basis of financially strong locals.